Nuclear Energy: Investing in Our Energy Security

Remarks by
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I'm pleased to join you today, and glad to have this opportunity to provide my perspective on the outlook for a new era of nuclear power development. After decades of defensiveness, we are now looking forward to decades of new development of nuclear power—in the United States and globally.

Some of you may still wonder if this current bullish outlook for nuclear power expansion is what Yogi Berra once described as, "déjà vu all over again."

We wouldn't be here today if we didn't believe that the expanded use of nuclear energy is vital.

The steady increase in demand for electricity, the need for more power plants, fluctuating energy supplies and prices and concerns about pollution and global warming are making nuclear power look more attractive.., and more affordable. Nuclear power is seen as a necessity to meet our needs for increasing, clean, dependable and economic electric power.

After a nearly three decade hiatus, we are about to enter a new era in U.S. nuclear power plant orders, construction and operations.

A simple statistic can illustrate why this is essential and the dimensions of the prospects for new nuclear power plants in the U.S.

Today, 103 nuclear reactors generate 20 percent of America's electricity. The Energy Information Administration projects that in the next 25 years, U.S. electricity demand will grow by 50 percent. Just to maintain the 20 percent nuclear share, would require building the equivalent of 45 to 50 one thousand megawatt nuclear reactors.

The number of nuclear plants needed to meet electric power demand would further increase if decisions are made to reduce the construction or use of coal or natural gas fired base-load power plants. Growing concerns about global climate change could also influence such future decisions. Nuclear power is the only proven base load producer of electricity that does not emit greenhouse gases. That is a persuasive reason for continuing and increasing the use of nuclear power.

As a result, we are seeing many in the environmental community take a new look at nuclear energy. As Patrick Moore, one of the founding members of Greenpeace, recently stated before the U.S. House of Representatives

> "Nuclear energy is the only large-scale, cost-effective energy source that can reduce C02 emissions while continuing to satisfy a growing demand for power — cleanly AND safely."

He is not alone among environmental activists in looking at nuclear energy differently. And recent public opinion polls echo this too -- showing the strongest support for nuclear power in decades.

The Administration and the Congress have taken the necessary steps to stimulate the construction of new nuclear power plants here in the U.S. DOE's pending FY 2007 budget request includes more than $630 million for nuclear energy programs—a nearly $100 million increase above the previous year. A significant portion of these programs, along with industry cost-sharing, are aimed at stimulating the ordering of new, advanced light water reactors by the end of this decade.

GOVERNMENT INCENTIVES: NUCLEAR POWER 2010 AND 2005 ENERGY POLICYACT

There are new and powerful financial incentives to stimulate industry action. A significant portion of these aimed at stimulating the ordering of new advanced light water reactors by the end of this decade.

They include:

• Standby Support or federal risk insurance,

• Production Tax Credits, and

• Loan Guarantees.

Standby Support

Government Standby Support Contracts will insure up to six reactors for delays related to the NRC's completion of certain reviews and hearings, and for litigation that causes delays in full power operation.

The Secretary of Energy is authorized by Congress to enter into six contracts to cover costs up to $500 million for each of the initial two reactors and 50 percent of covered costs up to $250 million for each of the next four reactors. In August of this year, the Department issued a landmark rule, providing the implementing guidance for ensuring its availability for sponsors of the first six nuclear plants.

Production Tax Credits

The Energy Policy Act provides a Production Tax Credit for new nuclear power facilities. This provision permits a taxpayer to claim an eight year tax credit equal to 1.8 cents per kilowatt-hour of electricity produced.

Among other requirements, the provision specifies a national capacity limitation of 6,000 megawatts-electric. Guidance issued by Department of Treasury would allocate the tax credits on a pro-rata basis, based on beginning construction before 2014.

In order to qualify, a company must submit a combined Construction and Operating License (COL) by the end of 2008. The Department of Treasury, in consultation with the

Secretary of Energy, is developing further details and timing requirements for tax credit applications.

Ultimately, this will stimulate a larger number of tax credit applications and perhaps earlier filing of combined Construction and Operating License applications.

Loan Guarantees

A key provision enacted by EPACT and of particular interest to this gathering is the application of federal loan guarantees to energy technology projects. EPACT conferred broad authority on DOE to provide loan guarantees to projects that reduce, avoid, or sequester air emissions and greenhouse gases, among them, nuclear energy and clean coal projects. This is an important precedent, which when fully implemented will enable sponsors to secure the huge investments needed to build a new generation of nuclear plants in the U.S.

In effect, loan guarantees enable unregulated plants to borrow more money at lower interest rates than otherwise would be possible. With loan guarantees the debt-to-equity ratio might be increased up to 80 percent debt and 20 percent equity. The result is at least a 30 percent savings at the busbar — savings potentially passed on to the customer.

Earlier this year, DOE published guidelines for the loan guarantee program and issued a solicitation inviting interested parties to submit the Pre-Applications by December 31, 2006. DOE is using the first round of loan guarantees on comparatively smaller projects to gain experience and then move on to larger scale projects such as nuclear and clean-coal facilities.

While the initial DOE solicitation did not invite pre applications for advanced nuclear, clean coal, or petroleum refinery projects, the Department has stated that additional guarantees are forthcoming and future solicitations could address nuclear power facilities.

However, one caveat about the loan guarantee program that we must remember is that the Federal Credit Reform Act of 1990, which requires Federal agencies to accurately measure the costs of lending programs, contains a requirement that prevents the Department of Energy from issuing loan guarantees until it has authorization to do so in an appropriations bill. As such, we are hopeful that Congress will include such language in a relevant DOE appropriations bill in the near future.

Nuclear Power 2010 Program Status

Nuclear Power 2010 program is a joint government/industry cost-shared effort with several goals.

- First, to identify sites for new nuclear power plants,
- Second, to evaluate the business case for building new nuclear power plants,
- Third, to demonstrate and test the streamlined regulatory processes and
- Fourth, to utilize and deploy a new generation of advanced light water reactor designs with improved safety, security, and economics.

Progress is being made in each of these key areas. We expect that Nuclear Power 2010 and other stimulus efforts will result in the successful operation of new, advanced light-water reactor nuclear plants in the United States by the end of the next decade.

Some examples of this progress are in order, so I will identify some of the step-by-step efforts underway that are moving toward commitments to build. Each of these steps also brings these efforts closer to decisions by investors considering the financing of new plant construction.

Early Site Permit Demonstration Projects

DOE is currently supporting three Early Site Permits (ESP) and two New Nuclear Plant Licensing Demonstration

Projects:

The three applications for Early Site Permits for new nuclear power plants were submitted to the NRC in the fall of 2003 by:

- Entergy, for Grand Gulf in Mississippi,
- Dominion for North Anna in Virginia and
- Exelon for Clinton, Illinois.
- Site approval decisions by NRC for these applications are expected in 2007.
- Southern Nuclear submitted an ESP application for Vogtle in Georgia in 2006, which is also under NRC review.
- Industry has indicated that up to 3 more ESP applications may be submitted between 2007 and 2009.

New Nuclear Plant Licensing Demonstration projects

- Two DOE New Nuclear Plant Licensing Demonstration projects were initiated in the spring of 2005. These include:

  NuStart Energy Development LLC—a consortium of 10 power companies that operate over 60 percent of the currently operating U.S. nuclear power plants— and Dominion Energy.
- Completion of these projects will demonstrate the effectiveness of NRC's streamlined process to license, build and operate new advanced nuclear power plants.

- Two combined Construction and Operating License (COL) applications are currently under preparation and scheduled for submission to NRC in 2007.

Design certifications by NRC for advanced power reactors are also underway.

We expect that by 2009, decisions will be made by power companies to go forward. That being the case, combined Construction and Operating Licenses could be approved by the NRC in 2010 and nuclear plant construction could begin in late 2010 or early 2011.

The dimensions and implications of these potential commitments are substantial. 14 power companies have notified the Nuclear Regulatory Commission of intentions to submit 20 COL applications for at least 30 new nuclear units over the next several years.

The DOE Nuclear Power 2010 program and the 2005 EPACT incentives are doing the job intended of stimulating new nuclear power plant construction and overcoming the financial and regulatory barriers that have impeded commitments to building these new nuclear plants in the U.S. Together, they provide the confidence that investors need, that new plants can be built at a predictable cost and schedule and that building new nuclear plants is economically competitive with other energy technologies.

Spent Fuel and Waste Management

Before concluding this presentation, I want to speak to the issue of spent fuel and management of our nation's nuclear wastes.

America's fleet of nuclear power plants has been setting new records for efficiency, power generation and safe operation. At the same time, they have steadily increased the inventory of spent fuel that is being safely stored at their premises.

The Federal government is obligated to accept this spent fuel, and though we are behind in our efforts to open a geologic storage site for nuclear waste at Yucca Mountain, we remain strongly committed to securing the approvals necessary to open that facility. The Department's FY 2007 budget includes nearly $545 million to support these activities.

DOE plans to submit a license application for the Yucca repository to NRC in 2008 with a target for NRC approval and start of construction expected in 2011.

We could begin accepting waste shipments as early as 2017, assuming passage of the Administration's legislative proposal. We are hopeful that the next Congress will give our proposal full consideration.

Current law limits the capacity at Yucca Mountain to 70,000 metric tons until a second repository is in operation.

The Administration's legislative proposal eliminates the 70,000 metric ton limit and allows credit for spent fuel recycling activities. This reflects the Administration's initiative to proceed with the deployment of commercial nuclear fuel recycling technologies envisioned under the President's Global Nuclear Energy Partnership.

The Global Nuclear Energy Partnership

For three decades America has been dealing with spent fuel as if it was waste. In effect, this approach failed to utilize the more than 90 percent of the energy content that still resides in this spent fuel.

GNEP envisions a new, commercial partnership effort to recover, recycle and safely utilize that latent nuclear fuel without producing separated plutonium alone.

So instead of just clean energy, through GNEP, we would move to green energy, recycling and reusing our valuable energy resources to the fullest.

Toward that end, we are seeking to leverage existing and new technologies to build and operate advanced recycling facilities. These will include

- A nuclear fuel recycling facility to process, separate, and recover the usable components contained in commercial spent fuel. The remaining plutonium and actinide elements would be fabricated into new fuel.
- An advanced recycling reactor would use this recycled fuel, consume the plutonium and actinides and produce electricity.

By recycling the used nuclear fuel, and consuming plutonium and actinides, we would steadily decrease the volume and radioactive toxicity of wastes. This waste reduction can significantly increase the capacity of a single waste repository.

Bottom line by recycling U.S. spent nuclear fuel the Yucca Mountain geologic repository will have the potential capability to accommodate all of the used U.S. commercial nuclear fuel that has been, or will be, produced by our nuclear power plants through the end of the century.

While GNEP will initiate these programs and projects, we envision that these commercial recycling facilities would be built by the private sector. This approach will also consider international partnerships.

Industry has responded positively to our initial invitations and communications about this initiative and we will continue to move forward.

I have described a vibrant field of nuclear activities involving the government and a broad spectrum of industry. Each of them is significant in their own right. Taken as a whole, they clearly offer and promise a myriad of domestic and global business and investor opportunities.

If I have one reservation about this nuclear renaissance, it is about using the word “renaissance.” The accomplishments of the Atomic Age are already impressive and constantly serving the needs of mankind.

More than 400 nuclear reactors in 30 countries are generating 16 percent of the world’s electricity. America has the most power plants, with 103 nuclear reactors generating 20 percent of our electricity.

For all the reasons that you have heard and will hear today, the global use of nuclear power is already enjoying considerable expansion. America is in the process of catching up with this growth. And we are clearly moving rapidly in that direction.

I recall a scene in the film “The Right Stuff,” in which the members of the first team of U.S. astronauts were arguing with a scientist about a design feature in their space craft. The astronauts asked him if he knew what made that space craft go up. The scientist was puzzled and mumbled about fuel. The astronaut said, “No, funding is what makes that space ship go up!”

That is why conferences like this are so important. And why you are so important. This new era of nuclear power plant expansion can’t take off without funding...the billions of dollars for each plant will have to come in large part from investors.

As you assess industry, its plans and the actions of its governments, I hope you will see it filled with opportunities.

Thank you.